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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,688	01/21/2004	David Tyvoll	200314080-1	5274

22879 7590 01/25/2007  
HEWLETT PACKARD COMPANY  
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INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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HAGEMAN, MARK

ART UNIT	PAPER NUMBER
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3653

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/762,688	TYVOLL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Mark Hageman	3653	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11-14-2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

In light of the appeal brief filed 11-14-2006 the finality of the previous office action is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quake et al. in view of US 6,596,143 to Wang et al. Quake et al. discloses an input reservoir configured to hold a mixture of first particles and one or more second particles (24); a transport mechanism configured to move portions of the mixture in parallel from the input reservoir; and a plurality of sorter units (col. 8, lines 24+) in fluid communication with the input reservoir and configured to receive the portions of the mixture, each sorter unit being configured to selectively move at least one second particle, if received in one of the portions, from a path followed by first particles received in the one portion so that the at least second particle follows a different path (col. 8, lines 24+). Quake et al. further discloses a transport mechanism is configured to move particles by electrophoresis (col. 8, lines 28+). Quake et al. fails to disclose the transport mechanism is configured to move particles by dielectrophoresis. Wang et al discloses the transport mechanism is configured to move particles by dielectrophoresis and more specifically by traveling wave dielectrophoresis (abstract, c2 lines 60+, and c6

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lines 26+) for the purpose of allowing flexibility and easy manipulation and control of a single type or multiple types of particles (c2 lines 37+).

3. With regards to claim 2, Quake et al. further discloses a manifold configured to place the input reservoir in fluid communication with the sorter units (col. 7, lines 11+).

4. With regards to claim 3, Quake et al. further discloses the manifold defines a conduit network that branches as it extends from the input reservoir to the sorter units (col. 7, lines 11+).

5. With regards to claim 4, Quake et al. further discloses the transport mechanism is configured to provide continuous transport of the portions of the mixture, and wherein each sorter unit includes a pulse-activated transport mechanism configured to selectively move the at least one second particle (col. 8, lines 28+).

6. With regards to claim 5, Quake et al. further discloses the mixture is disposed in a fluid, and wherein the transport mechanism is configured to apply at least one of a positive and a negative pressure to the fluid (col. 2, lines 63+).

7. With regards to claim 6, Quake et al. further discloses the transport mechanism is configured to apply a negative pressure to the fluid downstream of the plurality of sorter units (col. 2, lines 63+).

8. With regards to claim 7, Quake et al. further discloses one or more receiver structures in fluid communication with the plurality of sorter units and downstream thereof (col. 7, lines 21+).

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9. With regards to claim 8, Quake et al. further discloses the one or more receiver structures include a single receiver configured to receive first particles from each of the sorter units (col. 7, lines 21+).

10. With regards to claim 9, Quake et al. further discloses the transport mechanism is configured to apply a positive pressure to the fluid in the input reservoir (col. 2, lines 63+).

11. With regards to claim 10, Quake et al. further discloses the one or receiver structures include a single receiver configured to receive the at least one second particle from at least two of the plurality of sorter units (col. 7, lines 21+).

12. With regards to claim 11, Quake et al. further discloses each sorter unit is in fluid communication with a different receiver structure so that the at least one second particle moved by different sorter units are placed in different receiver structures (col. 7, lines 21+).

13. With regards to claim 12, Quake et al. further discloses the different receiver structures are wells of a microplate (col. 7, lines 39+).

14. With regards to claim 13, Quake et al. further discloses the mixture of first particles and one or more second particles is a mixture of different types of cells (col. 5, lines 39+).

15. With regards to claim 51, Quake et al. fails to disclose the dielectrophoresis includes traveling wave dielectrophoresis. Wang et al discloses the transport mechanism is configured to move particles by dielectrophoresis and more specifically by traveling wave dielectrophoresis (abstract, c2 lines 60+, and c6 lines 26+) for the

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purpose of allowing flexibility and easy manipulation and control of a single type or multiple types of particles (c2 lines 37+).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have modified Quake to include the transport mechanism being configured to move particles by dielectrophoresis and more specifically by traveling wave dielectrophoresis, as taught by Wang, for the purpose of allowing flexibility and easy manipulation and control of a single type or multiple types of particles.

### ***Response to Arguments***

16. Applicant's arguments with respect to claims 1-13 and 52 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references all show the use of either dielectrophoresis or traveling wave dielectrophoresis as a transport mechanism in microfluidic applications..


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Hageman whose telephone number is (571) 272-3027. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MCH



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